R5650-2
3/15/89

JAPAN · ECONOMIC · INSTITUTE

JEI REPORT

A Two-Part Report: A and B

NO. 8A February 24, 1989

INTELLECTUAL PROPERTY: WHOSE IDEA IS IT, ANYWAY?

Summary

It is universally accepted that creative thinking can enhance the material as well as the aesthetic wealth of society. Conversely, governments disagree on how (and even whether) to protect such creativity. The mounting pressures of global economic competition combined with the key role that advanced technology plays in this competition have brought intellectual property rules near the top of many government agendas, especially in the United States and Japan, the world's acknowledged leaders and competitors in high technology. Although both governments are striving to harmonize intellectual property rules, fundamental differences in industrial structure, in innovative comparative advantage and in basic attitudes toward intellectual property may ensure that frictions in this area never are completely resolved.

Ideas as Property

The fact that an idea is ephemeral has not prevented the concept of intellectual property from taking solid root in Western civilization. A new idea confers a competitive advantage on the innovator only if it is transformed into a product or service. But selling the product on the open market opens the door to copying by competitors. A mantle of legal rights is the only way to safeguard intangible creativity. The right of central authorities to grant special rights to makers of unique or innovative products under certain circumstances has gone hand in hand with the development of market economies.

As the focus of economic activity shifted from agriculture to commerce and industry, the need to reward innovation through intellectual property

protection became widespread in the Western world. During the industrial revolution, Western governments began to understand the broad economic benefits derived from innovation and naturally extended protection to the ideas underlying physical products as well as to the products themselves. Protection of the physical expression of an idea has been firmly buttressed by protection of an idea no matter what form it takes.

The essence of all intellectual property rights is to grant control of an idea to the creator. This allows him to reap the benefits of his creativity by using the idea himself while preventing others from doing so or by allowing others to use his idea for a fee. Benefits conferred on innovators are balanced by the gains enjoyed by the entire society from the availability of new or improved products and from the potential for further advances based on the new knowledge.

Over time several different kinds of intellectual property safeguards have been developed to meet the varied needs of industrial, commercial and artistic endeavors:

Patent - A patent is granted for new and useful products, production processes or methods for using new or existing products. A patent is a grant issued by a national government bestowing the right to exclude others from making, using or selling the invention within the national territory. Patent coverage has been extended to cover innovative production processes as well. Included under this category are lesser forms of protection, such as utility models, petty patents and inventor's certificates. This also covers other kinds of industrial patents, such as patents of improvement, patents of importation and patents and certificates of addition. These other forms of patents coexist with regular patents and provide some protection when an ordinary patent is not available or denied.

The key premise of a patent is that it encourages inventors to make public the details of their creation (through the contents of patent applications) in exchange for exclusive rights to use it for a limited duration. The rights granted must be a sufficient incentive to the inventor to induce him to allow others to study his creation. Obversely, the patent right should not be so strong as to prevent or deter others from building on or improving the patented invention. Striking a proper balance between the desires of inventors and users is critical to the proper functioning of a patent system as well as a subject of international debate.

Trade secret - A trade secret is information -- including a formula, pattern, compilation, program, device, method, technique or process -- that derives independent economic value, actual or potential, from not being generally known and not being readily ascertained by legal means by other people who can obtain economic value from its disclosure or use. Holders of trade secrets must expend a reasonable effort to maintain secrecy in order to claim protection of this type. The concept of trade secrets certainly predates that of patents but has been less relevant until recently. Trade secrets are a less

The JEI REPORT (ISSN 0744-6489) is published weekly except for the New Year, Memorial Day, Labor Day, Thanksgiving and Christmas holiday weeks for $40 per year by the Japan Economic Institute of America, 1000 Connecticut Avenue, N.W., Washington, D.C. 20036. Second class postage paid at Washington, D.C. POSTMASTERS: Send address changes to JEI REPORT, 1000 Connecticut Avenue, N.W., Washington, D.C. 20036.

optimal solution for protecting intellectual property from society's viewpoint because, by definition, the inventor does not share the details of his creation, thereby possibly slowing the pace of technological advance.

In recent years, however, trade secrets have been regaining favor specifically because the pace of technological development has increased sharply. Advances in some fields are now so rapid that the economic usefulness of some innovations lasts less time than it takes to obtain patent protection. To counter this trend, governments are trying to reduce the patent processing time, especially for leading-edge technologies. At the same time, the United States is trying to win international acceptance of greater rights in relation to trade secrets.

Copyright - A copyright is a form of protection granted by a national government to authors of original works, including literary, dramatic, musical, artistic and certain other intellectual works. The copyright owner has the exclusive right to: reproduce the copyrighted work in copies or audio recordings; prepare derivative works based on the copyrighted work; distribute copies of the protected work to the public by sale, rental, lease or loan; and perform the copyrighted work publicly in the case of literary, dramatic, musical and choreographic works and pantomimes or display it in the case of pictorial graphic and sculptural works, including individual images of a motion picture or other audiovisual work. In short, a copyright protects an author's creation regardless of the format in which it is cast.

This last attribute has been stretched, in the opinion of some observers, to include industrial property. Specifically, programmers have used copyright laws to protect the many aspects of computer software, including not only the written form but its electronic, magnetic and chip-embedded forms and even its appearance to the user. The main objection to the copyrighting of computer programs is that the length of protection (up to 50 years in the United States) is much too long and can hinder the development of better, compatible software.

Trademark/service mark - A trademark/service mark is any word, name, symbol, device or any combination thereof adopted and used by a manufacturer or merchant to identify his goods/services and distinguish them from those manufactured or sold by others. Counterfeiting, one of two trademark/service mark violations, is the unauthorized use of a representation or copy of a registered trademark/service mark. Other forms of infringement include the offering for sale, distribution or advertising of goods or services using a copy or colorable imitation of a trademark/service mark so similar to that of another that deception or confusion is likely to result. Specifically excluded from these definitions of infringement are: goods produced or marketed under a trademark/service mark with the consent of the registered owner and goods that bear a trademark but are imported or sold in contravention of a commercial arrangement (so-called gray market goods).

Manufacturers long have recognized the value of a respected brand name. The wide availability of counterfeit $20 Rolex watches and Gucci handbags is a testament to this. As services become an increasingly important area of economic endeavor, advanced countries have tended to upgrade the importance of service mark protection. This area is hotly debated between developing and advanced countries.

The Key to Future Competitiveness

Differences between foreign and American approaches to intellectual property are not new phenomena. U.S. businesses have contended with pirates and counterfeiters for decades, but the overwhelmingly dominant position of American industry in the postwar period cushioned any adverse effects. Only as the U.S. economic position has eroded in relation to the rest of the world has Washington become sufficiently concerned over guarding American intellectual property assets to act. High technology industry, portrayed as the key to American economic prosperity in the future, is keenly interested in stronger protection for its intangible assets. Washington also is increasingly aware of the link between a strong commercial technology base and a strong defense industrial base.

The electronics field is probably the most obvious candidate for strong IP protection. The development and production of state-of-the-art components and products takes millions if not billions of dollars. Many household appliances and consumer products rely on advanced integrated circuits, a condition even more true of military equipment. Protecting this rapidly changing field has strained existing U.S. laws, finally resulting in a new form of IP protection, the Semiconductor Chip Protection Act of 1984 (discussed below). Although other industrial countries, including Japan, have adopted safeguards similar to those in U.S. law, the potential for disagreement with developing countries remains high.

Of equal importance is protecting the computer programs that allow all this marvelous hardware to perform useful functions. According to some observers, software development is far more daunting than designing a new microchip. The diffusion of computers into every area of economic activity is multiplying the demand for software. Artificial intelligence programs, robotic control software, educational programs, business management and telecommunications software represent millions of man-hours of work. Because this is one field where the United States has a clear international competitive advantage, Washington is particularly keen to establish uniform international protection.

The pharmaceutical and chemical industries traditionally have made heavy use of IP protection. The advent of biotechnology, with its broad applications in agriculture, food products and pollution control as well as pharmaceuticals, has added to the American interest in strong international IP rules. Although protection is well established for drugs and plants developed with traditional methods, biotechnology products have presented some novel issues.

With regard to pharmaceuticals, the production of naturally occurring substances through biotechnological means poses a problem. The end product is not novel or nonobvious, two requirements for a patent. As the biotechnology industry was developing, U.S. process patent law, an obvious alternative, was weak by international standards. In 1982, however, the U.S. Supreme Court ruled that microorganisms that have been altered through biotechnology were patentable. In 1986 the first patent for a genetically engineered plant was granted; a year later patent applications for genetically altered animals were accepted.

The scope and the rules for protecting biotechnology products are subjects of intense negotiation among American, Japanese and European patent officials. Any results of patent officials' discussions may become moot, however,

with the development of a body of law arising from the numerous patent infringement suits filed by American and European drug companies.

Another area ripe for IP protection is new materials, the name for a broad range of substances that exhibit improved or novel characteristics. Structural plastics, carbon composites, high-strength fibers, high-performance ceramics and optoelectronic materials are the subjects of intense research and development efforts because of their potential economic value. The hottest area of new materials today is high-temperature superconductors. HTS materials, with their ability to conduct electric current with no loss of power to resistance, could revolutionize industrial and everyday life. Patent offices in Europe, the United States and Japan are braced for a flood of applications in this field. According to Japanese media reports, Japanese firms are aggressively filing HTS applications, an estimated 2,000 in Japan alone. Harmonization of patent rules would help prevent patent gridlock in this fast-moving field.

Besides the income derived from direct use of the invention by its creator, IP laws allow creators to generate income indirectly through licensing agreements. When the United States was technologically dominant, American firms licensed their technology for relatively little money. Sony Corp., for example, got a boost early in its history by inexpensively licensing U.S. transistor technology. Today, however, U.S. firms demand much more out of technology licensing agreements. This trend also is apparent in Japan, which, despite its overall deficit in technology licensing fees, has been enjoying a surplus if only new licenses are counted. In certain technology fields, the Japanese are careful not to license away their leads. But Japan also is sensitive to rising international demands that it play a more active role in global development. There is a broad consensus within the country that technology licensing will become an important export in the years to come.

The cost of weak international IP protection can be very high. According to a 1988 study by the U.S. International Trade Commission, the companies surveyed estimated that inadequate intellectual property protection cost them $23.8 billion in global sales in 1986. Interestingly, the survey showed that imports of counterfeit or pirated goods were a relatively small problem, amounting to $1.8 billion in 1986. The loss of overseas sales due to competition from local counterfeiters was estimated at $7.7 billion. U.S. exports were reduced directly by an estimated $6.2 billion because of pirated products. And the estimated loss of $3.1 billion in unpaid license fees also was laid to poor IP protection abroad.

Protecting intellectual property assets clearly confers significant direct and indirect benefits, both immediately and, what is more important, in the future. It is equally clear that the failure to vigorously defend IP rights around the world has a high cost, one that is likely to rise as more countries enter the high technology arena. Indeed, as the price of developing advanced technology rises, so does the incentive to infringe or pirate IP assets. Many American semiconductor firms attribute Japan's speedy entry into some product segments in the 1970s to blatant copying of U.S. products. While this was not illegal at the time, it served as a clear signal for action. American policymakers now perceive that there is a strong link between U.S. intellectual property assets and its international competitive position. After decades of neglect, Washington's efforts to strengthen international IP protection are raising foreign worries over intellectual protectionism. While the possibility

certainly exists, Washington unquestionably has cause for concern with regard to foreign IP protection. On the other side of the coin, foreign countries have some grievances with U.S. approaches to safeguarding IP.

The American and the Japanese Systems

Friction between the United States and Japan over intellectual property is a product of overt and subtle differences in their IP protection laws and practices. Many Americans have charged that Japan's system discriminates against foreign applicants, a charge strongly denied by Japanese patent authorities. Those who closely examine Japan's patent system will not find questions that take into account an applicant's home country during the examination process. Therefore, overt discrimination against foreigners does not exist. In terms of actual operation, however, the reasons for the foreign complaints are clear, particularly when the Japanese system is compared to its U.S. counterpart.

Patents - Unlike many other aspects of Japan's system of government, the Japanese patent system is not patterned after the American model but instead draws from the German approach. Nevertheless, from a basic standpoint the two systems are similar: inventions must be novel and nonobvious in order to qualify for a patent; the term of protection is comparable, with a U.S. patent lasting 17 years from the date of grant and a Japanese certificate good for 20 years from the date of application or 15 years from the date of grant; post-grant oppositions are allowed to test the validity of a patent; and patent holders in both countries generally are given the same legal rights to prevent use by others, to license the patent, and to use it freely for their own benefit. In several respects, however, the two systems are very distinct.

- Requirement of prior art - In the U.S. system patent applications must list all existing patents plus information used to develop the new idea and anything closely related. This prior art makes it easier for the patent examiner to evaluate the novelty and nonobvious nature of the application. If a U.S. submission fails to include all prior art, the applicant may be subject to stiff penalties. The absence of a prior art requirement in Japan exacerbates the phenomenon known as patent flooding, according to U.S. companies (see below), and even can lead to a patent for an already patented product. Because there are no penalties for applying for a patent on a productive process that already has been patented, foreign firms charge that the Japanese system actually encourages conflicting filings.

- Location of inventive activity - For purposes of attributing a discovery to its inventor, the U.S. patent system recognizes only activity that takes place in the United States. In contrast, Japan and most European countries recognize inventive activity anywhere in the world. In this case, it is the U.S. system that discriminates against foreign inventions -- although not necessarily inventors since an American's overseas activities also are not recognized. This difference is a severe handicap from the standpoint of Japanese firms.

- First to file vs. first to invent - This is another area where unique U.S. rules irritate foreign applicants. Under the U.S. approach the act of inventing is accompanied by the creation of a right to obtain protection for

that invention. An inventor has one year from the date of announcing the invention to file a patent application. This one-year grace period is an absolute defense against anyone else trying to patent the invention as long as the creator does not suppress, conceal or abandon it. In Japan and elsewhere the right to file a patent is not connected to the act of invention. The first one to file a valid patent has claim to the invention.

The first-to-file approach is a partial explanation of why five times as many patents are filed in Japan as in the United States. Japanese firms promptly file patents not only for basic inventions but for as many permutations and derivations as they can conceive. The rush to file often means that many applications are incomplete, imperfect or impractical. Under the U.S. system an inventor can fine-tune his invention and explore its uses before applying for a patent. The American method also means, however, that a Johnny-come-lately in the invention contest still can win the patent race. American firms that have been slow to file in Japan sometimes have found that competitors have beaten them to it, even though the Japanese patent agency observes a six-month grace period between invention and filing. This significant difference has generated many charges of unfairness against the Japanese system.

- Scope of patent claim - Although on paper this difference no longer exists, Japan's patent system previously limited each application to a single, narrow claim in contrast to the multiple claims allowed in the United States. The inventor of the bicycle, for example, could file one application in the United States for a "two-wheeled vehicle powered by its rider." This application would include the wheels, pedals, seat, steering mechanism and other components necessary to create a whole, working bicycle. In Japan an application had to be filed for each part as well as the whole. This is another reason why comparatively more patents have been filed in Japan than in the United States.

It also has led to a practice known among foreign companies as patent flooding. Continuing the bicycle analogy, if an American firm files a basic patent for a bicycle, Japanese law allows another company to file a patent for a bicycle "with special pedals," or for critical components, such as the chain/gear system. The holder of a basic Japanese patent seeking to commercialize his invention can be confronted by a whole array of closely related patents that prevent him from the free exercise of his patent rights. The value of a basic patent can be severely reduced in Japan by the need to cross-license closely related patents.

At the other end of the process, many foreign firms complain that Japanese patents are taken too literally by Japanese Patent Office examiners. If an already issued patent covers a particular product with 10 to 20 percent of ingredient X, a JPO examiner will allow a patent for a similar product because it uses 21 percent. The extra 1 percentage point is not likely to make any difference in the product's performance, but the addition qualifies the applicant for a separate patent. In all other countries the 21 percent patent would be rejected on the grounds that the 1 point difference had no material effect. This literalness again reduces the value of a Japanese patent.

Since the beginning of 1988 the Japanese Patent Office has accepted multiple-claim patents and promised to toughen its standards for novelty. Because JPO waits 18 months before publishing the contents of patent applications, there is no evidence yet whether this rule change will lead to a shift in the content and the number of patent applications.

• Publication of patent applications - On this point it is the U.S. system that is out of line with practice in other countries. As mentioned, JPO opens patent applications for public inspection 18 months after receiving them. The U.S. Patent and Trademark Office, in contrast, keeps all information regarding an application confidential until it decides to grant or deny the request. (The applicant can ask that the information be released ahead of this point.) While some foreigners complain that the U.S. system hinders the dissemination of new technology, PTO's rapid reduction of the average processing period to within 18 months makes its nondisclosure practice no more burdensome than the Japanese or the European approach. In fact, PTO considers its system to be an advantage since a patent's details are revealed only after protection has been granted. In Japan, on the other hand, an invention can be examined by competitors before any protection is in place. Foreign complaints that Japanese competitors quickly take advantage of such information to develop alternative or derivative technology without fear of penalty (administrative and legal remedies are seen as impotent) are a major source of foreign investors' irritation with the Japanese system.

• Pregrant opposition - One purpose of allowing access to an application before granting the patent is to allow third parties to file oppositions. This practice, in part, compensates for Japan's lack of a prior art requirement. The onus of proving the novelty of the application is shared by the applicant and the third parties. In theory, the results should be similar to those achieved by the U.S. prior art requirement: applications that might infringe on existing patents or are insufficiently novel will be rejected. In reality, however, the practice severely weakens the value of a patent.

Third parties often have several years to study and prepare oppositions to a given patent application. (The paperwork is laid open to public inspection 18 months after a filing, while the call for oppositions comes sometime between two and seven years later.) Any number of oppositions can be filed. The applicant, on the other hand, only has three months to formulate a reply to each opposition. Foreign firms often spend up to a month or more just translating the oppositions, which can be many pages in length and present complex arguments. The application can be denied if JPO considers a rebuttal to just one opposition as unsatisfactory. The impact of this pregrant opposition system is felt most keenly on applications for critical or seminal inventions. This is not surprising since it is to the advantage of Japanese competitors to delay such a patent, regardless of who filed it. West Germany has dropped pregrant opposition from its system, and the United States is strongly urging Japan to follow.

In summary, the principal U.S. complaints about the Japanese system can be grouped into two categories:

• The processing period is excessive. Although the JPO receives many times the number of applications its U.S. counterpart handles (see Table 1 and Table 2), the number of Japanese patent examiners is not much more than half that in the United States (approximately 860 versus 1,500 in 1987). Combined with the current system of pregrant and postgrant oppositions, approval of a patent application can take as long as 10 years.

• The Japanese system does not provide adequate protection. Because a patent can take as long as 10 years to obtain and since the patent's lifetime

Table 1: Industrial Property Applied for and Registered in Japan

(number of cases)

	Patents*		Trademarks	
	Applied	Registered	Applied	Registered
1960	141,097	49,237	39,089	20,516
1965	227,738	75,599	62,123	31,217
1970	319,757	80,382	139,414	49,089
1975	392,731	129,963	155,469	109,166
1980	438,436	127,396	127,151	65,739
1981	476,541	132,595	134,251	68,314
1982	499,609	139,404	139,198	86,125
Foreign	29,010	9,454	13,184	6,352
1983	517,817	141,938	150,318	113,245
Foreign	29,775	10,386	14,273	9,125
1984	541,631	153,791	161,882	116,636
Foreign	28,251	11,356	15,418	9,483
1985	562,417	128,090	161,546	119,534
Foreign	31,341	8,880	14,989	9,388
1986	576,935	136,703	168,890	118,475
Foreign	32,557	9,788	15,894	9,019
1987	596,726	146,814	175,861	117,075
Foreign	32,913	9,589	17,468	8,775

*Includes utility models and designs.

Source: Japanese Patent Office

Table 2: Industrial Property Applied for and Registered in the United States

(number of cases)

	Patents*		Trademarks	
	Applied	Registered	Applied	Registered
1970	106,295	70,131	33,807	21,974
1975	109,227	74,364	33,898	27,234
1980	112,315	61,227	52,149	14,614
1981	114,710	71,010	55,152	31,306
1982	124,800	65,152	73,621	39,025
1983	105,704	59,715	51,014	41,179
1984	117,985	72,149	61,480	45,475
Foreign	50,168	30,087	8,860	6,795
1985	125,931	75,302	64,677	63,122
Foreign	55,993	32,539	11,100	9,703
1986	131,403	76,993	69,253	48,971
Foreign	59,418	34,606	12,574	9,118
1987	137,173	88,793	70,002	47,522
Foreign	62,344	41,298	12,553	8,664

*Includes design, plant and reissue patents.

Source: U.S. Patent and Trademark Office

is 20 years from the date of application, intellectual property can be both unprotected for many years and also have a shorter span of protection. In the period before a patent is granted, competitors can study and even use the patent application with relatively little fear of being caught and penalized. Once the patent is granted, enforcement of the owner's rights can be difficult. The Japanese preference for carefully negotiating disputes out of court, the judicial system's glacial pace, and the high costs associated with both actions can frustrate the aggressive and timely enforcement of patent rights. It is not that enforcement is unobtainable but rather that it often is moot by the time it is attained.

From the Japanese standpoint, the U.S. system also has some shortcomings:

- The U.S. patent system, as previously mentioned, does not recognize inventive activity that takes place outside the United States for the purposes of determining who was the first to invent. Since most of Japan's research and development work is done domestically, Japanese inventors are at a disadvantage compared to their American counterparts in filing for U.S. patent rights. Although the 1883 Convention of Paris for the Protection of Industrial Property grants inventors that file in one country a one-year grace period to file in other countries, the Japanese correctly can claim that the U.S. system discriminates against foreigners.

- The Japanese are uncomfortable with how the U.S. legal system handles patent suits. While U.S. laws and penalties are relatively clear, the authority of judges to set their own evidentiary criteria and impose sentences is quite broad. Moreover, U.S. district court judges, who are the first to hear patent suits, generally are not up to date on technology. While some Americans would argue that this ensures a fair case, ignorant justice is not the same as blind justice. In contrast, Japanese judges who handle IP cases, according to scholars in the field, usually have had some formal exposure to science and engineering. While this also is no guarantee of an informed and fair decision, it is somewhat more reassuring than the U.S. condition.

Semiconductor mask work - The importance and unusual nature of integrated circuits led the United States to develop a unique, or sui generis, form of protection. The design of an integrated circuit is intimately connected with its physical expression in the pattern of metal layers that make up a microchip. The template design used to imprint the metal patterns, called a mask work, does not qualify for copyright because it is not a work of authorship. Furthermore, it does not qualify for patent protection because it fails to meet the novelty and nonobviousness requirements. Nevertheless, Washington agreed that as an intellectual creation of great commercial value the template design should be protected.

Under the Semiconductor Chip Protection Act of 1984, protection exists for an original mask work fixed in a semiconductor chip by, or under the authority of, the owner of the mask work. But the mask work must be registered or commercially exploited somewhere in the world. In addition to exclusive rights for direct action, the owner can authorize others to: reproduce the mask work by optical, electronic or other means; import or distribute a semiconductor in which the mask work is embodied; and induce or knowingly cause another person to take either of the above actions. An original mask work is

protected for 10 years from the date of registration or first commercial exploitation. Designers have two years from the date of first commercial use to register the mask work with PTO.

Included in the 1984 law are provisions that would deny protection to mask works developed overseas if foreign countries did not grant similar protection to U.S. chip designs within their jurisdictions. Conversely, the law allows PTO to grant temporary protection to foreign mask works provided steps are being taken in their country of origin to provide equivalent protection. Under this impetus, Tokyo eventually passed similar legislation in 1986 after obtaining a year of provisional coverage from PTO. European countries also followed the U.S. lead and enacted equivalent legislation.

Copyright - On paper the American and the Japanese copyright systems are practically identical. The scope of coverage is essentially the same (original works of authorship of most forms), the period of protection is the same (lifetime plus 50 years for individuals or 50 years from the date of grant for corporations), and the rights granted are the same (control over the performance and reproduction of the work regardless of media).

Where Japan falls down, in American eyes, is in the enforcement area. Enforcement in the printing and publishing industry is seen as satisfactory, while regulation in the areas of film and music is considered to be wanting. Audio and video recordings that are pirated (illegal copies of authorized works) or bootlegged (unauthorized releases or compilations of artistic works) are easily obtainable and, in fact, highly popular in Japan. There is little incentive for authorities to crack down because all Japanese parties benefit from the practice and the problem is relatively small in comparison to the sale of legitimate recordings.

It is also unheard-of to pay fees to copyright holders for public use of their work by third parties. Radio and television stations, for example, do not pay a fee every time they broadcast a copyrighted piece of music. Japan, however, is moving to remedy this particular abuse of international standards. The Copyright Council recommended January 28 that Japan sign the Rome Accord, which specifically protects the rights of performers and musicians in relation to radio and television broadcasts.

Trademark/service mark - Turning first to trademarks, U.S. and Japanese rules are generally similar and provide equivalent protection. Unlike the case of patents, both Japan and the United States employ a first-to-file rule. This country, however, observes a rule that protects internationally well-known but unregistered marks from registration or use by unauthorized local parties. Japan does not follow this guideline, resulting in cases such as Coca-Cola Co. fighting a tiny Japanese firm for the right to its famous name. This can happen more often than not in Japan, immune until relatively recently from widespread commercial penetration by U.S. firms. Thus, firms with well-established brand names trying to enter Japan's markets for the first time may find their labels already co-opted by a local product.

Beyond this relatively minor problem, the Japanese trademark system, in some respects, is better than the American one. Japanese trademark examiners, through computerization, have reduced the processing period from four to two years. U.S. examiners took nearly 13 months on average in 1987 to process a

trademark application. Moreover, trademarks are treated more like property in Japan; they can be bought and sold like any asset. This is not the case in the United States. The rights to prevent others from using a registered trademark are strong and broad, almost too much so in the eyes of some foreign lawyers.

Service mark protection in Japan, on the other hand, currently is unavailable. This lack of explicit protection combined with a Japanese penchant for things exotic can present foreign service companies with some unique problems. The operators of Tokyo Disneyland, for example, had to go to court to force a "massage" parlor to stop using Disneyland in its name. American firms are not the only victims, however. Many European companies that rely on name cachet, such as Chanel, often find their name on everything from beauty parlors to restaurants. The increasing importance of the service industry has goaded the patent agency to act. It currently is building a database of service marks and hopes to begin registering marks by 1992. It is studying regulations around the world as it draws up standards for qualities such as originality and usage.

Trade secrets - This is another area where the United States is ahead of Japan. The Uniform Trade Secrets Act provides American companies with a measure of protection against industrial espionage and other forms of misappropriation of proprietary information. Japan has no such laws, perhaps explaining the country's uniformly shocked reaction to the 1982 arrest of several Japanese employees of Hitachi, Ltd. on charges of illegally obtaining confidential information about International Business Machines Corp.'s computers. The lack of any frame of reference led to wild speculation as to the true American motives behind the whole affair.

Tokyo has greeted recent U.S. attempts to promote international standards for trade secrets with a fair degree of nervousness. While avoiding a response to the charge that patent protection is becoming irrelevant in Japan because of extended processing times, Tokyo does feel justified in voicing its qualms about the impact of trade secret protection on the pace of global economic development.

If one were to look only at the written laws, one might not expect much friction between Japan and the United States over intellectual property rights, given the numerous similarities. On reviewing how each system operates, however, it is clear that the de facto situation adds varied shades of gray to the de jure situation. While some of the differences stem from simple problems, like a lack of manpower at the Japanese Patent Office, or from unavoidable causes, like the burden of translating English into Japanese and vice versa, other frictions reflect a fundamental difference in American and Japanese attitudes toward the basic concept of intellectual property.

A Matter of Attitude

The sine qua non of property is the concept of exclusionary rights. If you can prevent others from gaining access to something, you own it. This is the basis of the American approach to intellectual property and has become the standard against which Americans and Europeans measure all other systems. The concept requires all IP systems to recognize the exclusive rights of the grant holder and provide a system of effective injunctions to prevent unauthorized use of the protected asset. By this yardstick, Japan's system comes up short. In testimony before Congress, industry and academic witnesses point to two factors that cripple the Japanese system:

• Mandatory licensing rules - Under current Japanese patent law, if a company is granted a patent in an area designated as a "technology of national importance" by the Ministry of International Trade and Industry, other firms can petition MITI to force the patent holder to cross-license the desired technology. The fact that the government can coerce a patent holder to yield his right of control, even if it is under unusual circumstances, indicates a very different attitude toward intellectual "property."

Nearly all American observers share the opinion that the Japanese patent system encourages cross-licensing as a normal practice. The narrow scope of claim, the literal interpretation of content and the long opposition process effectively force patent holders to cross-license. Japanese business practice supports this contention. One reason many Japanese firms build up huge patent portfolios is to improve their bargaining position in cross-licensing negotiations, according to comments from several Japanese corporations.

• Lack of effective injunctive relief - Both during the patent application period and when it is in force, Japanese law provides protection that should enjoin an interloper from infringing on a patent. The reality is less than optimal. In the first place it is up to the patent applicant or holder to discover whether infringement is taking place, not a simple task for a foreign firm with a small presence in Japan. Proving infringement can be difficult because defendants are protected from full discovery. Plaintiffs cannot force a defendant to reveal exactly how a particular product was produced because Japanese law defends that information as proprietary even if the production process itself is the focus of the investigation. Plaintiffs must be convincing in showing how they deduced from the final product that infringement took place. Given the literal interpretation of patent content by Japanese officials, even a small change in the specifics may be enough to vindicate the defendant from infringement charges.

In addition, the length of time needed to process a patent combined with the time that can be taken up in postgrant oppositions can equal or exceed the length of patent protection. If injunctive relief is not effectively available and if the period of protection is consumed by the examination process, it is clear that the Japanese system again fails to provide exclusive rights to intellectual property owners.

From the Japanese perspective, there is nothing wrong with this approach. Japan places a premium on the right to use an idea and to build and advance on it. "The licensing of technology acts as a vehicle for the diffusion of technology through transfers and the creation of new technologies," according to Professor Toshifuni Hienuki of the Kanazawa University law faculty. The U.S. approach to intellectual property, he adds, "lacks adequate understanding of the social costs of intellectual property rights, such as increased prices for patented goods due to extensive limitations on the use of a given technology."

It should be very clear that Japan and the United States disagree on the correct balance between the rights of inventors and the rights of users. This difference in attitude undoubtedly arises in large part from the different cultural heritage of the two countries. This country's approach is a natural product of the European experience with its focus on individual rights, the rule of law and free market economics. Intellectual property law not only encourages

innovation by preventing third parties from appropriating the benefits of an invention, but it converts knowledge and information into commodities that easily can be bought and sold.

Japan draws its attitudes toward intellectual property from China, where no one can claim exclusive right to an idea. It is a general principle in Asian societies that an idea cannot be controlled or withheld once it is made public. Imitation is the sincerest form of flattery, according to the Chinese view. This attitude was well entrenched in Japan before Western civilization made inroads there. From this standpoint conflict over intellectual property is not at all surprising.

A Matter of Advantage

Beyond cultural factors, there are a number of other reasons why each nation feels comfortable with its own particular system of intellectual property protection. Not only do these factors highlight the differences between Japan and the United States, they also point to potential roadblocks to solving frictions in this area.

Capacity for innovation - From the very start the American patent system was built on an assumption that the United States had a comparative advantage in innovation. The Constitution explicitly gave people the power "to secure limited, exclusive rights to the works of those whose creative genius both enriches and extends our lives." When the U.S. patent system was established in 1839, the framers adopted the first-to-invent standard -- a standard that no one else in the world follows today except the Philippines, where the United States had a hand in setting up the patent system. The U.S. economy was built on the backs and minds of inventive and resourceful people, hard at work competing with the established nations of Europe. In the 19th and 20th centuries Americans played a major role in nearly every field of scientific and industrial advancement. The first-to-invent system suited Americans' perception of comparative advantage in radical innovation.

Japan, on the other hand, always has borrowed heavily from foreign culture, science and technology. The first-to-file approach adopted there after studying the American and the German systems around 1900 fits with this tradition of borrowing since it treats incremental improvements the same as seminal advances. The first-to-file system compensates for Japan's perceived disadvantages in creativity.

Only the recent apparent shift in commercial advantage between the two nations has forced a reevaluation of these assumptions on both sides of the Pacific. A Japanese firm topped the list of patent grantees in the United States in 1986. This was the first time any foreign firm had attained that position. The shift in status quo became even clearer in 1987 when Japanese firms took the top three places. Japan long has accounted for the largest share of all patents granted to foreigners (see Table 3 and Table 4), while foreign firms consistently have won only a limited number of the total patents granted in Japan. Japan's emergence as the most formidable U.S. rival in many high technology areas has ignited a furious debate in Washington about how to restore this country's dominance. Washington's efforts to strengthen industrial property rules. one outgrowth of this debate, has led to an examination of the industrial structures of both countries.

Table 3: Overseas Patent Applications by Japanese

(number of cases)

	1980	1981	1982	1983	1984	1985	1986	1987
Patents	37,444	36,197	39,548	41,632	46,058	55,104	59,357	59,250
United States	11,928	11,971	14,195	15,960	18,030	22,633	24,604	23,992
Britain	5,115	4,423	4,341	4,047	4,039	3,796	3,625	3,143
France	3,079	2,494	2,246	2,252	2,187	1,98[illegible]	1,718	1,641
West Germany	4,765	4,319	4,195	3,831	4,086	4,06[illegible]	3,797	3,699
Australia	1,307	1,235	1,419	1,376	1,619	2,091	2,146	1,909
Italy	1,244	961	840	757	626	540	403	505
Utility Models	7,618	4,781	7,555	7,712	7,655	9,637	8,636	10,125
United States	2,524	1,573	2,771	2,708	2,828	3,759	3,610	3,739
Britain	1,138	536	861	916	798	873	714	829
France	639	312	529	507	426	496	403	473
West Germany	993	585	800	882	741	854	634	831
Australia	297	213	276	284	360	390	285	289
Italy	262	164	165	232	159	191	178	231
Designs	1,517	1,784	2,199	1,907	2,666	2,633	2,583	3,501
United States	394	457	610	581	787	911	828	972
Britain	256	317	456	382	490	503	518	746
France	84	119	140	97	121	82	95	201
West Germany	142	114	152	132	190	132	190	226
Trademarks	1,456	401	999	1,944	1,186	965	1,290	849
United States	206	65	78	287	109	139	174	153
Philippines	99	24	30	207	45	36	70	39
Canada	83	21	27	108	65	78	49	75

Source: Japanese Patent Office

Table 4: U.S. Patents Applied For and Granted* to Foreigners

(number of cases)

	1984		1985		1986		1987	
	Applied	Granted	Applied	Granted	Applied	Granted	Applied	Granted
Japan	18,289	11,355	21,699	12,783	23,491	13,644	25,022	17,140
West Germany	9,551	6,402	10,722	6,574	10,630	6,995	10,951	7,967
Britain	4,482	2,414	4,473	2,516	4,862	2,661	5,173	3,002
France	3,481	2,286	3,801	2,448	4,032	2,514	4,069	2,937
Canada	2,539	1,317	2,570	1,424	2,700	1,421	3,072	1,738
Switzerland	1,843	1,262	1,966	1,187	2,021	1,297	1,975	1,428
Italy	1,802	828	1,336	968	1,879	1,077	2,054	1,258
Sweden	1,408	792	1,429	929	1,407	1,023	1,311	1,093
Netherlands	1,227	749	1,336	786	1,350	819	1,410	967
Australia	730	348	874	396	946	424	1,030	496
Taiwan	733	116	917	165	1,136	250	1,297	388

*Includes design, plant and reissue patents.

Source: U.S. Patent and Trademark Office

Industrial structure - The differences in Japanese and American industrial structures have been examined closely for their trade and economic effects. Japan's industrial sector is centered around a relatively small number of major companies or industrial groups. American industry is much less concentrated as a general rule. These differences show up clearly when research and development spending patterns and sources of patent applications are examined.

In Japan the large companies that pour money into R&D are the source of most innovations and therefore patents. Flanking the firms' R&D are large patent staffs keyed to making the best use of the country's first-to-file system. An army of experts is an advantage in preparing the large number of patents mandated by a first-to-file system, in carefully surveying all patent applications for useful information, in preparing the many pregrant and postgrant oppositions or responses that are part of the system, and in managing often complex patent licensing negotiations. The cost of filing and defending a patent in Japan can be very high, as much as several hundreds of thousands of dollars, in addition to the cost of the specialized staff.

In the United States small companies are at least as important as big firms as a source of innovation and new products. Small firms led the charge in such important industries as microelectronics and biotechnology. The first-to-invent system gives small firms a more even footing with big companies in the race to gain patent protection. Furthermore, the U.S. system is relatively inexpensive; it costs an estimated $10,000 to secure a U.S. patent.

Each country's system therefore is suited to its industrial structure. Conversely, each country may be at a disadvantage when operating under the other's system. In practice, large Japanese firms have found it relatively easy to adapt to the American system. Their large number of applications and relatively high rate of success show that they have invested the time and the money to learn how to effectively attain patents. Small (and even large) American firms feel the Japanese system is costly and imposes heavy burdens on them. And, indeed, an objective analysis supports this perception.

This does not mean that the Japanese system is unfair or discriminatory, simply that it is different. It cannot be said that American companies as a rule have invested as much time and as many resources in learning how to effectively use the Japanese system as the Japanese have done here. Although the subject is hotly debated in the United States, many American analysts feel that foreign applicants in Japan could be more successful in securing patents by simply devoting the necessary resources to the task. At the same time, they stress the importance of increased staffing by the Japanese Patent Office. This still leaves the issue of the efficacy of a Japanese patent open to question, however.

The American Challenge

U.S. policy toward intellectual property has undergone something of a revolution. It no longer is low priority nor considered in a vacuum. Instead, Washington has linked the policy with trade and security issues, bringing it near the top of the American agenda. Japan, aware of the importance the United States attaches to the issue, is searching to balance its own needs with the U.S. demands and the concerns of developing countries. Washington, meanwhile, has upped the ante through a series of unilateral and multilateral steps:

Stronger domestic protection - To set an example for the rest of the world and to better defend American IP rights on home soil, Washington has taken several unilateral steps in the 1980s. The actions were not centrally coordinated but rather evolved as the American attitude against intellectual property piracy hardened.

- Judicial system - Prior to 1982 U.S. courts held a generally unfavorable view toward a plaintiff's claims of patent infringement. This was due mainly to a continuing concern with the antitrust implications of a patent's implicit monopoly. Congress created the Court of Appeals for the Federal Circuit in 1982 to deal with a backlog of patent cases that had developed in this hostile climate. It is not clear why, but the new appeals court frequently has backed patent holders. As a result, American business rekindled its interest in aggressively defending IP assets.

- Stronger laws - Congress also began acting directly to improve the quality of IP protection in the United States. In 1984 it approved the Semiconductor Chip Protection Act, which was renewed in 1987 for another four years. The legislation's reciprocity provisions have been highly effective in encouraging other countries, including Japan, to adopt similar protection. In addition, the Omnibus Trade and Competitiveness Act of 1988 greatly strengthened the quality of process patents in the United States. U.S. firms now can seek an injunction against imports of goods produced by unauthorized foreign use of an American process patent. The 1988 act also made it easier for American firms to obtain relief from imported goods that infringe patents, copyrights or trademarks since petitioners no longer have to prove injury to win an injunction from the International Trade Commission.

The ITC, however, faces a challenge to the basic legislation underpinning its authority to hear IP infringement cases with regard to foreign firms. The case began in 1985 when E.I. duPont de Nemours & Co. charged Akzo N.V. of the Netherlands with bringing into the United States aramid fibers that infringed on its patents. Using Section 337 of the 1930 Tariff Act, duPont petitioned the ITC for injunctive relief, which the commission granted after it agreed with duPont's charge. Akzo, reacting to the ban of its product from the U.S. market, presented the case to an ad hoc trade dispute panel of the General Agreement on Tariffs and Trade, which ruled February 1 that Section 337 discriminates against foreign companies by giving the ITC rather than the U.S. courts authority in patent disputes. Despite the ruling, the oft-used Section 337 seems likely to continue to be cited by U.S. firms seeking relief from IP piracy, especially since Congress amended the law in the 1988 trade act and is unlikely to rework its efforts to meet GATT suggestions.

Congress also approved an extensive revision of the U.S. trademark law in October 1988. In addition to lowering the cost of registering new trademarks and making it easier for trademark owners to sue competitors for false claims against their products, the changes grant a trademark applicant exclusive use of his trademark for three years before requiring any sales using that mark. Although the period of protection was reduced from 20 years to 10 years to make it easier for others to apply for trademarks no longer in use, the provisions allowing renewal of active trademarks remained.

- Patent office improvements - PTO has embarked on a program to computerize the examination process in an effort to further reduce the processing

period. Although the program has encountered technical difficulties and criticism from outside observers, PTO is pushing ahead and should have most of its examination groups on-line by the mid-1990s. The White House also is trying to improve PTO performance in critical fields by mandating accelerated examinations. PTO officials report that the first designated category -- high-temperature superconductors -- has nearly 800 patents already placed on a fast track.

PTO is moving on its own to respond to the increasing importance of IP by widening its definitions of patentability. As noted earlier, PTO moved quickly to extend protection to biotechnology products in an effort to protect America's leading position in the field. Advancing into another important and untrod area, PTO has begun granting patents for mathematical algorithms, or methods of solving problems. While each application nominally is tied to hardware designed specifically to perform the algorithm, the equations themselves are an integral part of the patent.

The algorithm patents remain untested in court and are a point of some debate among patent lawyers. Since 1939 the Supreme Court has held that "scientific truth, or the mathematical expression of it, is not a patentable invention." Mathematical relationships, in particular, have been considered as preexisting in nature. Mathematicians simply uncover these relationships and therefore cannot own them. Since 1981 the court has fine-tuned its interpretation, saying that applications of scientific or mathematical principles may qualify for patent protection. Algorithms combined with powerful computers can confer decisive advantage in some business applications. Mathematicians worry that patenting algorithms will reduce the free exchange of ideas, while patent lawyers are concerned that IP chaos may erupt since all algorithms build on the work of many mathematicians. Nevertheless, the concerns underline the importance of PTO's continuing effort to protect new forms of IP in advance of the courts and lawmakers.

Trilateral patent harmonization - Since 1983 PTO, the European Patent Office and the Japanese Patent Office have been holding talks on harmonizing not only patent laws and examination standards but also examination procedures and new areas of patent protection. There are six major areas of discussion: the patentability of computer-related inventions, patent protection for biotechnology, defining the inventive step, standards for the unity of invention, disclosure requirements and administrative practices and procedures. Some major U.S. proposals include: elimination of deferred examination, elimination or restriction of compulsory licensing, requiring a reasonable scope for interpreting patent claims, eliminating pregrant oppositions, establishing a uniform international grace period, and permitting U.S. inventors to receive a filing date in Japan based on an English-language application.

The latest round of talks in October 1988 yielded agreement on two of the six major points: unity of invention and inventive step. Views on the other four areas still differ, with the gap being particularly wide with regard to the language used in applications and pregrant oppositions. The three sides are close to agreement on a uniform 20-year patent starting from the date of application and a one-year grace period between the inventive step and the application filing. All sides are preparing reports on the remaining four areas for an April meeting.

WIPO - These trilateral discussions also form the basis for discussion in the Club of 15, a core group for another multilateral forum, the World

Intellectual Property Organization. WIPO was founded in 1967 under the auspices of the United Nations as a forum for administering the two main international IP treaties, the Berne Convention for the Protection of Literary and Artistic Works and the Paris Convention mentioned earlier. The Berne Convention, adopted in 1886, deals mainly with copyrights, while the Paris Convention was promulgated in 1883 to handle patents and all other types of industrial property. Since 1984 WIPO has been seeking an international consensus on the following topics: a grace period between discovery and filing, the extension of process patent protection to the resulting product, the length and the scope of patents, the scope of claim interpretation, and first to file versus first to invent.

The U.S. position has been consistent: it would be willing to drop its first-to-invent system in exchange for a major strengthening of all IP protection. Washington particularly is interested in a uniform 20-year patent term patent availability for all types of goods and processes, and an adequate scope for patents. The United States strengthened its hand in the talks by finally becoming a signatory to the Berne Convention. President Reagan signed the necessary legislation October 31, 1988, saying the act would "secure the highest available level of international copyright protection."

The WIPO discussions have been deadlocked, however, due to wide differences between the views of developed and developing nations. Countries in earlier stages of industrialization view strong IP protection as a barrier to economic growth and social improvement. India, for example, does not grant patents for pharmaceuticals, on the rationale that it needs free access to modern drugs in order to raise its standard of living. The newly industrializing countries of Asia are concerned that advanced nations are trying to monopolize high technology. Thailand, for example, has just lost its benefits under this country's Generalized System of Preferences (duty-free treatment worth an estimated $168 million to the Thais) because Bangkok refused to strengthen its copyright and patent laws to suit American demands. Thai officials, while moving to meet some U.S. concerns, want their country "to stand on its own feet by producing competitive goods in world markets." Easy access to patented or copyrighted material may help.

In general, many developing countries see the United States as a bully, trying to hog everything for itself. Although their view of Japan is not as sharp, the level of trust with Japan has been historically low, particularly in Asian countries. Memories of World War II combined with current concerns over commercial exploitation underlie the skepticism.

Out of frustration with the stalled WIPO talks, the industrial nations formed the Club of 15, which includes the 12 European Community members, Liechtenstein, Japan and the United States. The club is drawing up a unified position on patent and copyright laws before the next WIPO meeting in June. Tokyo hopes to champion the concerns of developing countries in this forum. At a December 1988 meeting, Japan made three suggestions: uniform rules on the laying open of patent applications, rules giving applicants clear rights to prevent infringement or piracy by others while the application is pending, and limits on amending patent applications once they are filed. The proposals combine the views of developing and advanced nations. It is unclear if Tokyo's efforts to seek a middle position between the two blocs will succeed. Agreeing to major changes in its own practices, many of which are under attack, might improve its credibility and its influence in this forum.

Uruguay Round - The fourth round of multilateral trade negotiations under the aegis of the General Agreement on Tariffs and Trade opened at Punta del Este, Uruguay in September 1986. In addition to discussions on strengthening the GATT system, including services trade in the GATT framework, and dealing with agricultural subsidies (see JEI Report No. 22A, June 12, 1987), the 96 member countries agreed to an American request to put intellectual property rights on the agenda. Not surprisingly, the IP working group has been unable to agree even on the scope of discussion.

Following the December 1988 midterm review in Montreal, here is how the scorecard reads. The United States wants to put everything on the table except for location-of-origin rules and some design matters, while the European Community is willing to discuss everything. Japan is open to all subjects except trade secrets. The developing countries, however, generally are against discussing the entire subject. The views on enforcement of IP rights also differ. The Europeans see a need for a completely new enforcement mechanism, while the developing-country block feels that current GATT counterfeiting and piracy rules are adequate. The United States wants GATT members to adopt discovery procedures (the right of opposing parties to seek facts and testimony from each other) in order to aid detection and determination of infringement. Japan holds the opposite position that while some kind of infringement compensation is necessary, discovery procedures are not necessary.

It is not at all clear whether some kind of common ground can be found by the scheduled end of the Uruguay Round discussions in 1990. It is interesting to note that Japan's position does seem to lie between the advanced industrial nations and the developing countries. Whether this will put Tokyo between the proverbial rock and a hard place remains to be seen.

Bilateral talks - Not satisfied with the pace of progress in these multilateral forums, Washington cajoled Tokyo into putting the subject on the agenda of the U.S.-Japan Trade Committee, which meets regularly to discuss bilateral issues. The first session on patents, August 31 to September 2, 1988, broke no new ground. The American side complained about the Japanese practice of patent flooding, especially in new critical areas like high-temperature superconductors; the length of time it takes to obtain a patent in Japan; the short, six-month grace period used in Japan; and the lack of restraints on the practice of reverse engineering computer software (the creation of a functionally compatible program through close study of the original). For their part, the Japanese participants focused on the failure of the American system to recognize foreign inventive activity and on the potential for abusive use of Section 337 of the 1930 Tariff Act. These bilateral talks are unlikely to achieve results before the trilateral harmonization talks since the parties involved in the bilateral talks are not patent agency officials, yet the meetings serve as another means of keeping the subject in the minds of policymakers.

Japan Responds

The Japanese Patent Office has tried to deflect some of the barrage of complaints from the United States and Europe through administrative changes. In February 1986 Tokyo created a fast-track patent system that incorporates a version of the U.S. prior art requirement. While JPO claimed that this would reduce the examination period to between six and 12 months, it has not proved

popular. Nor has JPO solved the problem of a massive backlog of applications. In January 1987 JPO altered its standards for scope of claim, allowing multiple claims in a single application. As mentioned above, it is still too early to tell if this has had any significant impact. JPO also is engaged in a computerization process broadly similar to the PTO's goal of conducting a paperless examination. While the Japanese seem to have encountered fewer problems, U.S. patent officials feel the move will be insufficient to significantly reduce Japan's pendency period.

With an eye toward the future, the Japanese government is looking into other changes. Budget officials may be more receptive to an increase in JPO staff thanks to booming government revenues and an easing of fiscal austerity. A big boost in manpower would go a long way toward reducing the patent application period and would give Japanese negotiators more credibility at the bargaining table. It is unknown if the proposed FY 1989 budget, which boasts a 3.3 percent rise in discretionary outlays, includes funding for new personnel.

The Ministry of International Trade and Industry has established a group within its Industrial Policy Research Institute to study issues such as ending compulsory patent licensing, introducing formal trade secrets legislation, and improving the availability of injunctive relief against infringement. A subject that is not being discussed is the decoupling of the patent agency from MITI. The ministry can rightly argue that the patent office's role is critical to its ability to advance economic development. Of course, this is exactly why foreign observers have suggested that JPO be made independent.

Foreign complaints about the lack of effective penalties for IP violations are one of the more difficult issues facing Tokyo. Although the Japanese and the German patent systems are nearly identical, U.S. companies do not complain much about patent problems in West Germany. In addition to the fact that U.S. firms have been operating in West Germany on a bigger scale and for a longer time than in Japan and are thus more familiar with business and application practices, the German court system is viewed as an effective source of relief should action become necessary. In contrast, the Japanese court system is viewed by many foreign companies as another problem instead of a solution. It is not that the Japanese courts are unfair but rather that the process is time consuming and difficult.

Conclusion

Unanswered in the debate over intellectual property is the question of whether any one approach to IP protection is optimal for all countries. In addition to problems posed by different cultural values and imperatives, differences in industrial structure and comparative advantage may make complete harmonization not only unlikely but unwise. A prime example is the furious debate over whether the United States should drop its first-to-invent system and adopt a first-to-file system. PTO officials and some large companies feel that such a shift would not be harmful if the rest of the world adopted other changes the United States desires. However, scholars point out that Japanese business has invested massive amounts of money and manpower into building an infrastructure that takes best advantage of a first-to-file system. Thus not only would large American businesses be forced to invest similar resources to compete but small U.S. businesses might be barred effectively from patent protection under a first-to-file rule. Adopting a first-to-file system could even

worsen America's competitive position in the technology race according to this line of thinking.

While governments work on their end of the problem, the private sector is doing its part. According to MITI, 17 foreign research and development centers were in operation in Japan at the end of fiscal 1987 and another 17 were under construction. MITI reported that foreign firms were becoming increasingly involved with and integrated in Japanese industrial research circles. The importance of Japan as a research base is being recognized by more and more foreign firms. A greater foreign research presence in Japan should encourage foreign firms to invest the resources necessary for understanding the Japanese patent system, hopefully easing tensions. On the other side of the coin, Japanese firms also are expanding their overseas R&D activities by establishing their own research centers. (Japanese researchers have worked in existing foreign research centers for many years.) This growing integration of global research efforts should promote movement toward solving intellectual property frictions. With more to lose, all sides may be more willing to answer the question: whose idea is it, anyway?

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The views expressed in this report are those of the author and do not necessarily represent those of the Japan Economic Institute.